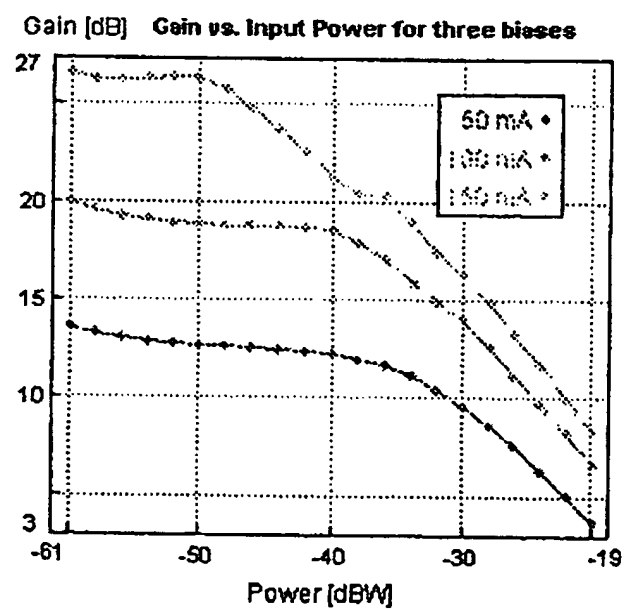


(a)



(b)

Figure 1: MQW SOA characteristics for three bias currents: (a) output versus input power, (b) gain versus input power.

FIGURE 1

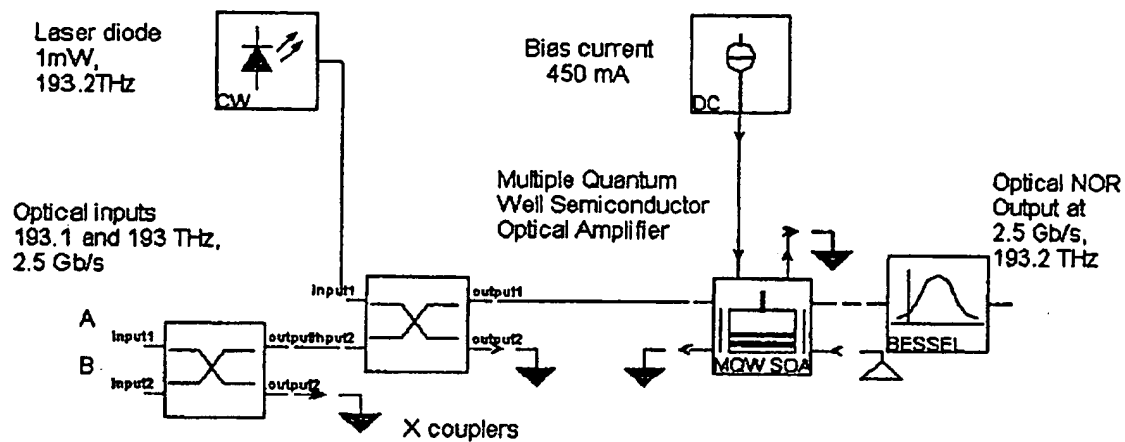


Figure 2: Schematic for NOR gate.

FIGURE 2

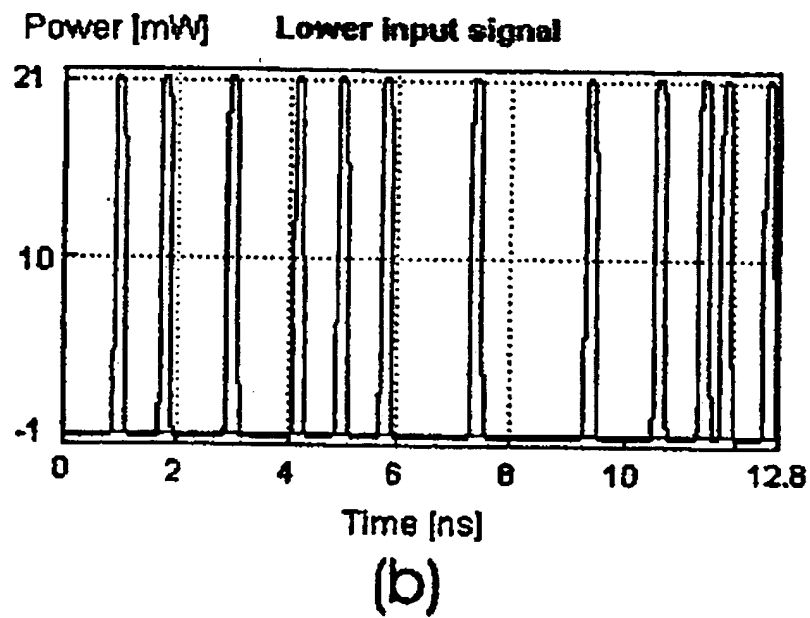
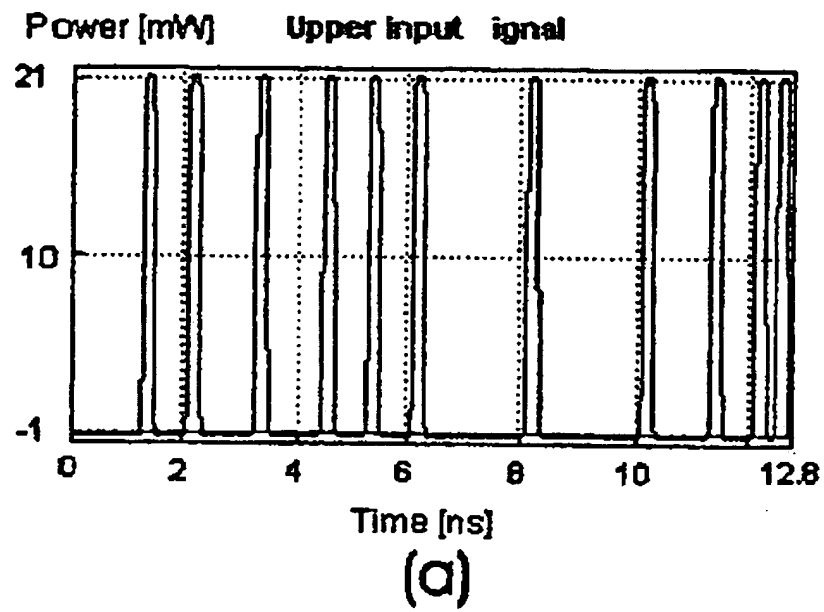


Figure 3: Input signal bit streams, (a) upper (A) and (b) lower(B).

FIGURE 3

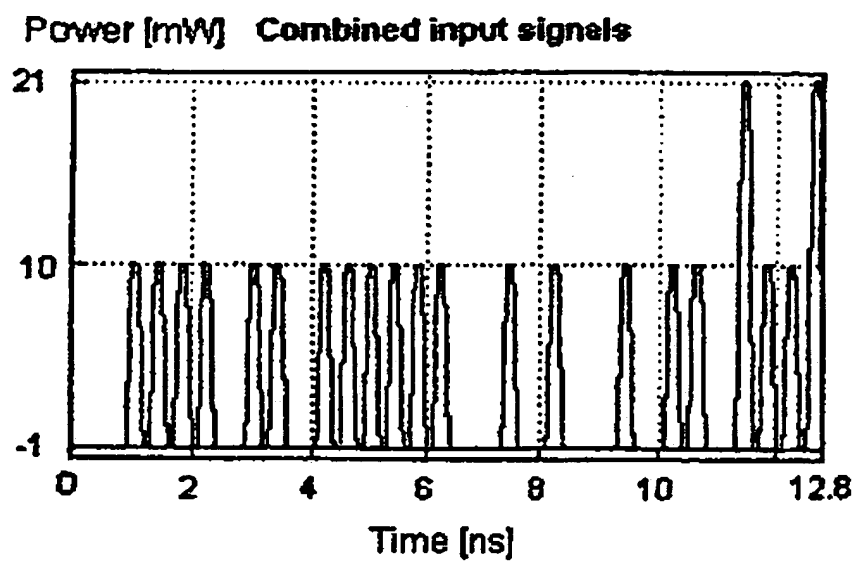
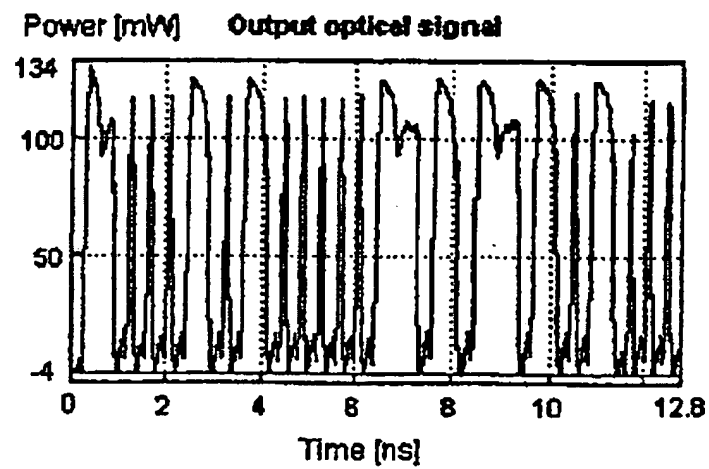
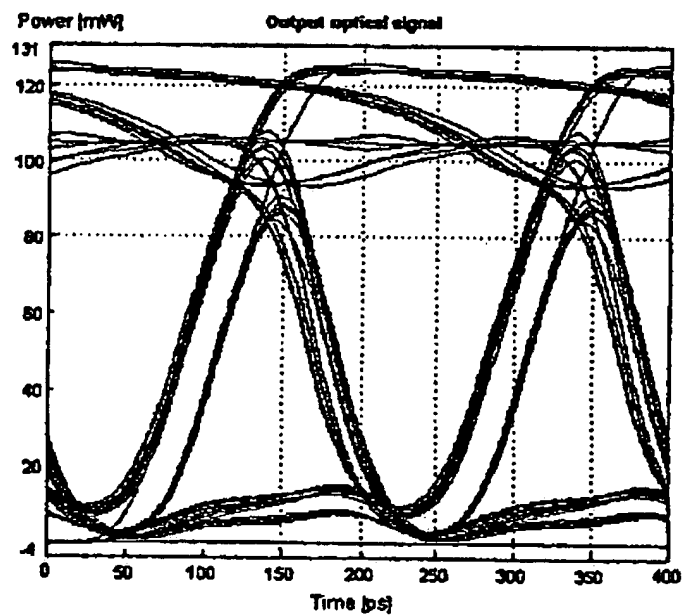


Figure 4: Combined input bit stream after first coupler.

FIGURE 4



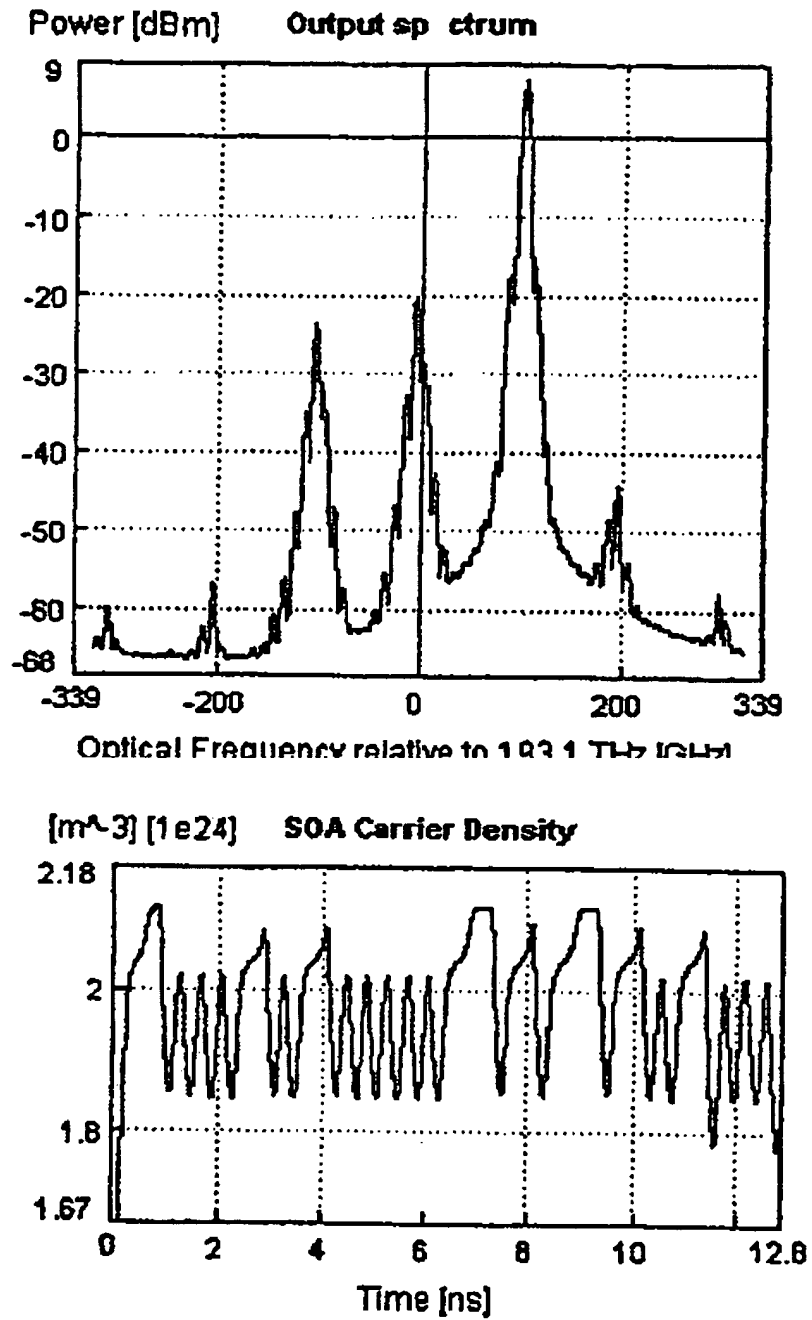
(a)



(b)

Figure 5: Optical output of NOR gate, (a) time signal, (b) eye diagram.

FIGURE 5



(b)

Figure 6: For an all-optical NOR gate: (a) spectrum at the output, (b) carrier density.

FIGURE 6

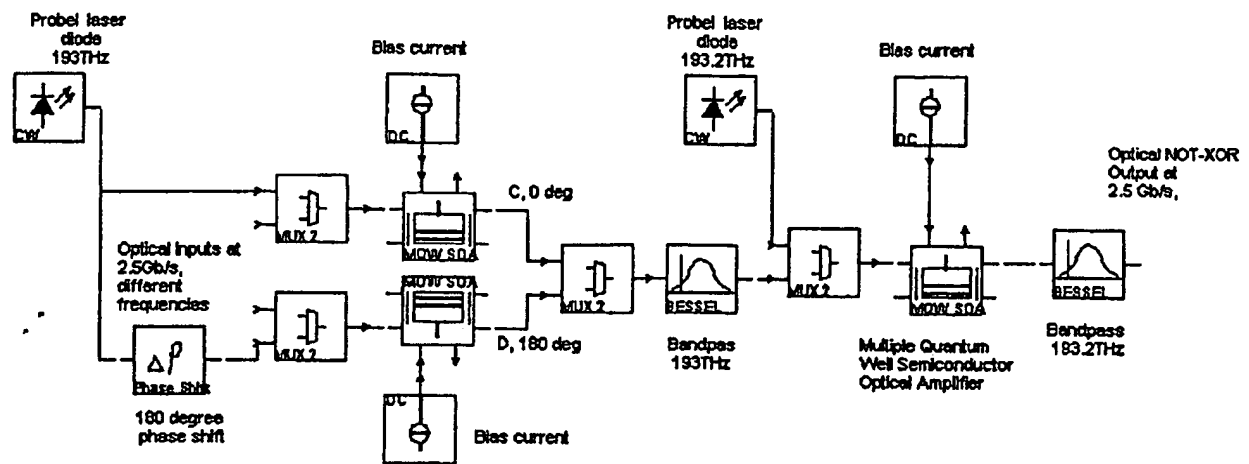
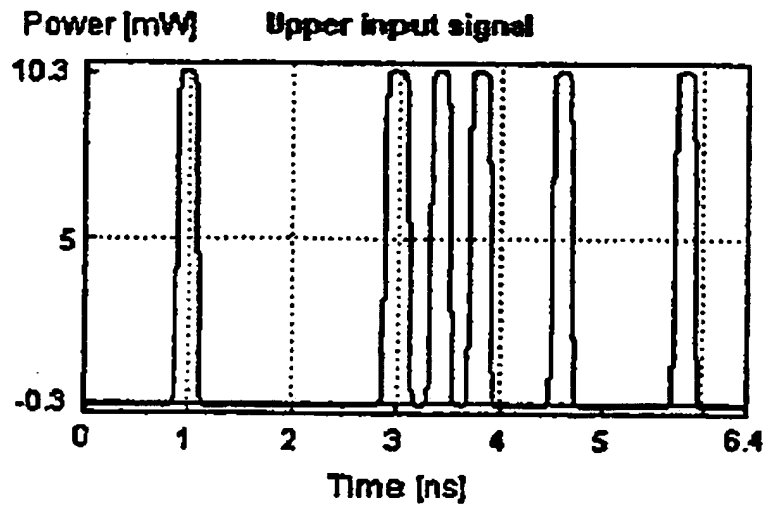
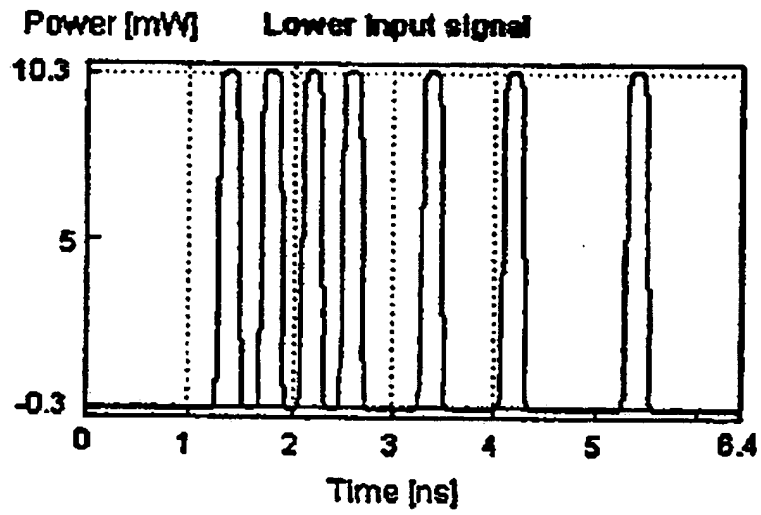


Figure 7: Schematic for NXOR gate.

FIGURE 7



(a)



(b)

Figure 8: Input signal bit streams at the combiner, (a) upper (C) and (b) lower(D).

FIGURE 8



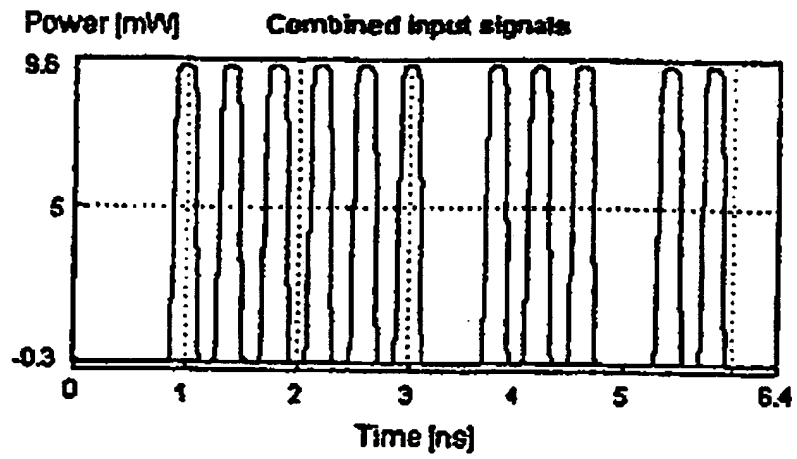
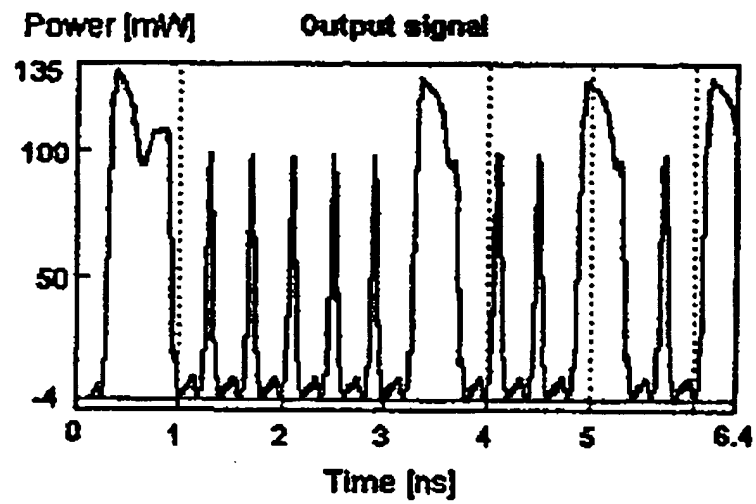
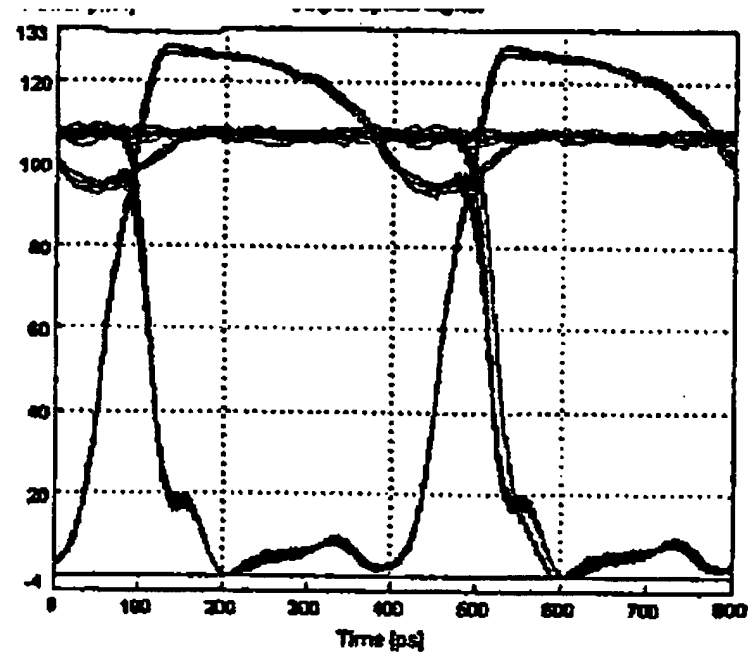


Figure 9: Combined input bit stream after first coupler for NXOR gate.

FIGURE 9



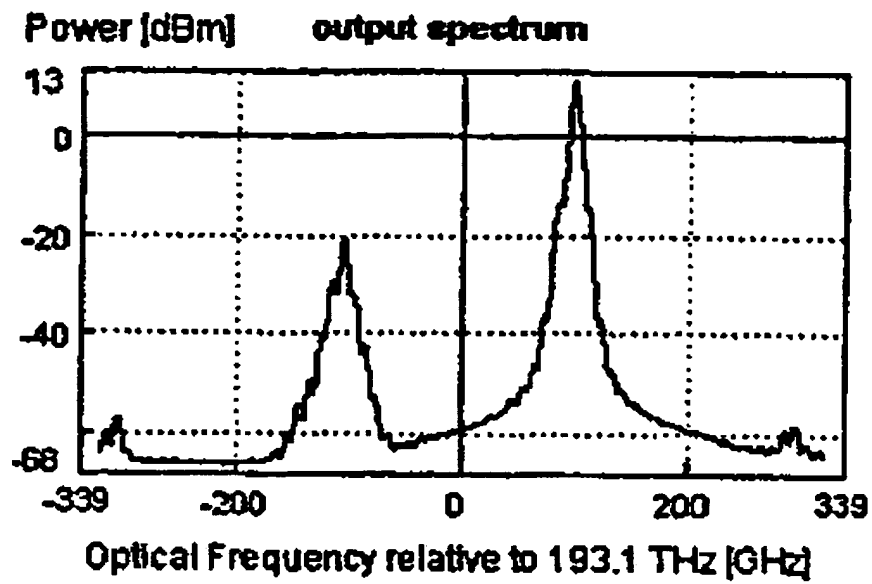
(a)



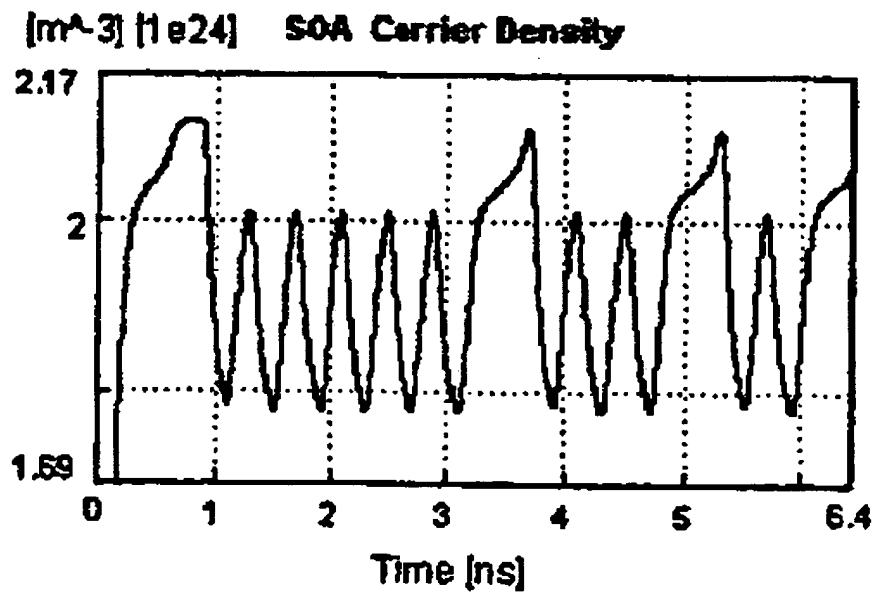
(b)

Figure 10: NXOR gate optical output: (a) signal bit stream, (b) eye diagram.

FIGURE 10



(a)



(b)

Figure 11: For an all-optical NXOR gate: (a) spectrum at the output, (b) carrier density.

FIGURE 11